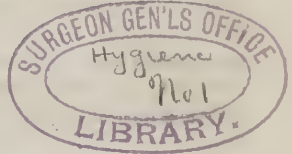


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1848

Dickson B. H. J.
NEW YORK UNIVERSITY—MEDICAL DEPARTMENT.

HYGIENE:

AN



INTRODUCTORY LECTURE,

BY

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SAMUEL HENRY DICKSON, M. D.

PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE.

29416

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NEW YORK, November 16, 1848.

PROFESSOR DICKSON,—

Dear Sir—At a meeting of the Students of the University Medical College, held on the 15th instant, Don LEON Y. DE ALVEAR, of Buenos Ayres, being in the Chair, and NEWTON F. VOWLES, of Virginia, acting as Secretary, it was unanimously

Resolved, That a Committee be appointed to solicit from your accustomed kindness, a copy of your very instructive and interesting Introductory Lecture for publication. The undersigned having the honor to constitute the above Committee, take great pleasure in expressing the warmest desires of the Class, and most respectfully add their solicitations to those of the Class, and trust that you will not refuse so unanimous a request.

We have the honor to be, Sir,

Your obedient Servants,

LEON DE ALVEAR, *Buenos Ayres.*

NEWTON F. VOWLES, *Virginia.*

J. J. JARVIS, *New York.*

L. D. SHEETS, *Maryland.*

WILLIAM BEEBE, *Ohio.*

L. N. DIMMICK, *Illinois.*

CHAS. ABBOTT, *Maine.*

JAMES W. RANNEY, *Vermont.*

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J. C. MCGEE, *Tennessee.*

A. C. DEANE, *Massachusetts.*

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G. D. WILCOX, *Rhode Island.*

E. P. CUMMINGS, *N. Hampshire.*

GEO. Y. BINGAY, *Nova Scotia.*

JOHN I. W. PAYNE, *Mississippi.*

O. S. STRANGE, *Canada West.*

O. BANNON, *South Carolina.*

J. McRAE, *North Carolina.*

JOHN T. SIMMONS, *Alabama.*

F. P. LEAVENWORTH, *Missouri.*

LEON Y. DE ALVEAR, *Chairman, &c.*

NEWTON F. VOWLES, *Secretary.*

NEW YORK, November 20, 1848.

TO MESSRS. LEON DE ALVEAR, Chairman, and NEWTON F. VOWLES, Secretary of the Medical Class, University of New York.

Gentlemen,—In reply to your note of the 15th inst. I have to say, that the Lecture of which you speak in such courteous terms shall be placed without hesitation in your hands, and at the disposal of the Class.

Be kind enough to offer to the gentlemen whom you represent, the assurance of my sincere consideration, and to express to them my regret that the essay was not more worthy of their notice, and of the occasion.

Very respectfully,

Your obedient servant,

SAMUEL HENRY DICKSON.

9, Brevoort Place.

LECTURE.

IN appearing again before you, Gentlemen, I offer you my cordial salutations, and bid you welcome to the scene of our future associated labors. I meet you here with a grave pleasure, mingled with throbbing anxiety. Long experience, while it has made my duties delightful to me, has also exhibited to me my constant liability to failure or imperfection in the fulfilment of the obligations pressing upon me, and has thus, I trust, taught me a prudent and becoming humility.

I enter upon my interesting task with a conscientious determination to exert myself therefore to the utmost to afford you, in the studies to which I invite you, the most efficient aid, and the most direct and truthful guidance. These are *my* functions here, and they are such as to give abundant scope to the highest intellectual ability, while they call for a faithful and unshrinking devotion, and an integrity unbiassed by personal considerations, and, above all selfish aims. To *you* belongs the not less essential and active share in our joint movements, of earnest inquiry, and unremitting attention; and a firm resolution, at whatever cost, to accumulate knowledge. You must first desire it as if instinctively and for its own sake, or you will not pursue it with the necessary avidity; the mind, destitute of this natural appetite, is in a morbid state, or originally unfit for the walks of science. Hereafter you will learn to love it for its beneficent and useful applications, and you will gladly discover that in the Profession of which you have made choice it is peculiarly the fact that every step of progress contributes directly to the improvement of the condition of our common humanity, and that *our* advancement is essentially conducive to the well-being of others.

In the distribution of offices in the busy life of our race, to us is allotted the glorious contest with suffering and sorrow, disease and death; our toils endless, ever urgent, darkened with frequent disappointment and repeated defeat; illumined still with ever-renewed hope, and the manly resolution which finds courage even in despair. For my part, I desire no better, no prouder occupation; the loftiest ambition might expatiate with ample range and full contentment, in the Promethean struggle to counteract the malignant agencies that beset our frail and wretched brotherhood, and render less rugged and thorny the brief passage which conducts from the cradle to the tomb.

The mere announcement of our purposes cannot but meet with approbation and sympathy; yet, strange to say, these sentiments far more readily attach themselves to the inferior than to the superior, to the part than to the whole. Proffer any remedy for any ailment, adduce but a shadow of proof that you have invented a means of relief from any par-

ticular grievance, and crowds of followers and heaps of wealth shall be your recompense. But the far greater boon of protection, prevention, which science vouchsafes to the wretched victims of disease with so much certainty, is scarcely valued enough to be investigated. It is difficult to persuade individuals or communities into measures the most reasonable and promising, even when experience has confirmed their applicability and importance. And thus it is in moral and social life. We neglect the child and punish the guilty man. We refuse the means of education, but stringently inflict penalties upon ignorance.

Hygiene, the science of prevention, whose pure and elevated object is the extinction of disease, has had until recently no separate functionary in our social institutions, no definite place in the progress of our improving civilization. And even now her voice is feebly uttered, scarcely listened to, and almost void of authority. We have no Professors of Hygiene in our colleges; our Boards of Health are clothed with little power, and their recommendations destitute of influence except in times of occasional panic, or when directed against nuisances palpably offensive. No place of honor or profit is assigned by the body politic to the philanthropist who volunteers his services in this department. Commissions are appointed, and report; associations organize themselves, and publish documents, and present memorials; registers are made, facts recorded, and principles clearly deduced, yet all with so little effect that no single great step has any where been taken in the right direction.

It is difficult to make definite alterations in the fixed face of things; to open parks amidst the dense masses of brick and stone that constitute our cities; to tunnel with sewers the earth encumbered with the thick foundations of thronged edifices; to raze the crowded blocks which impede the air and light; to ventilate the narrow hovel; to drain the damp cellar; to illumine the dark abode of the poor. Such are the obstacles, and they seem almost insurmountable, which impede the hygienic movements of old and settled communities, and paralyze the energetic philanthropy which yet refuses to succumb. Are they not full of warning to us, a nation yet in infancy, or youth, whose cities are just starting into growth and expansion, and taking on the form destined to be permanent for good or evil? We have not even in the New World a moment to lose, nay, too much time has been already lost in careless neglect of these matters, so important to us and to our posterity.

I propose to occupy the hour allotted me this evening with a few remarks upon the general topic thus brought before you. The discussion may, I trust, engage us both profitably and agreeably, although it will not be possible to enter fully into any of its interesting details.

I am exceedingly anxious to impress all who hear me with the paramount importance of this department of our divine science, and to induce them to prepare themselves with all assiduity to aid in its incessant cultivation and improvement. To *prevent* a single attack of disease is, in my mind, a clearer benefit, a more gratifying triumph, than to assist or preside at the *cure* of many similar attacks. To ascertain definitely and counteract the cause of any malady, is to effect

the extermination of that malady so far as it depends on that cause. If a disease depend then upon *one cause alone*, as Rachialgia upon the salts of lead, or Mania a Potu upon alcoholic stimulation, its absolute extinction is shown to be, physically, in our power; if upon a concurrence of causes, each of which contributes somewhat to its generation, it diminishes the chances of such production to detect and expose any one of them, which being counteracted or avoided, a less uniform or less vehement influence will be exerted, and the escape of some of its subjects rendered probable. And surely, no one will doubt that we can effect thus much in every supposable case. All that is required to obtain a steadily progressive advantage in the contest, and a success ever widening, is to direct our attention perpetually to these inquiries; gather and communicate freely all facts well ascertained; and derive from them, with all due caution, the guiding principles which they indicate and establish.

The Philosophy of Hygiene may be conveniently discussed under three heads: 1. The physical education of the young. 2. Personal Hygiene—the course of life of the individual. 3. Public or Municipal Hygiene, not inaptly treated of by a recent writer as “the political economy of health.” On each of these I shall touch briefly, after requesting your attention to a few preliminary observations.

We can scarcely find among the various treatises on these several points, one which is free from a defect which has done much harm by drawing down contempt upon the whole inquiry. In them all we are struck with the disposition to uncompromising exclusiveness on the one hand, the result of a habit of limited observation; or, on the other, to an unphilosophically minute interference, indicative of an equally narrow dogmatism. It would seem to be generally overlooked or forgotten, that Nature is far from being restricted or uniform in any of her modes of action or their products. An almost indefinable variety, resulting in the richest harmony and beauty, is presented in all her works. The elements employed in her operations, especially in the animated kingdoms, are infinitely numerous—their combinations infinitely diversified. Her agencies, unlike those of human mechanism, bring out individualities every where, analogies in profusion, and resemblances; but reproduce identities nowhere; nowhere give rise to precise repetition. When causes seem the same, results differ. The leaves of the same majestic oak, expanded by the same vital force of vegetation, supplied by the same sap, in contact upon the same stem, are not any two of them exactly alike in length or breadth, or shape, or weight, or shade of color. The offspring of the same parents in the animal world, however numerous, born under whatever similarity of contingencies, all of them present special peculiarities of shape and appearance which separate each from every other, and distinguish them in an indefinite diversity of modes. The constitution both of body and mind is universally diverse; no two are so nearly identical, or approximate so closely, as to be mistaken or exchangeable one for the other, their whole history being known. Nay, with all the symmetry of our conformation, the parts of no individual are precisely alike upon the opposite sides of the body; but a difference will be found to exist between the right and left eye and ear, cheek and brow.

In this, art seems irreconcilably contrasted with nature, yet it is, perhaps, after all, only seeming. The elements with which art carries on her operations are few; the agents of causation employed by her are palpable, their action obvious, and its results calculable and uniform. The data, if not all ascertained clearly, are all within our cognizance, and require only to be carefully observed and correctly estimated. The problems of all art are therefore soluble. Now, if the elements of natural causation were equally limited and notable, the effects of their action would be alike calculable. Nay, if the data were definitely ascertained, no matter how numerous or extensive, the powers of our expansible intellect would be, I doubt not, equal to the task, however difficult, of predicting the results—of solving the complicated and interesting questions offered to our consideration. But it is not so; nor can we at present indulge the hope that it will ever be, and we should be prompt to learn from this admission a lesson of humility. We can only approximate the truth, and we are bound to be cautious as to the mode in which we seek it. Let us perpetually endeavor to grasp the largest number of known or cognizable elements; to extend our views over the widest horizon. The basis of our hygienic doctrines must be broadly laid in a knowledge of the laws of physiological or healthy normal life; but a very large share of our reasonings in regard to these is of the *a posteriori* character, and deduced from observation of the evil effects of such agents as derange and hurt us. If we are not prudent, we shall be led astray from the outset by according undue weight to a few facts or phenomena—the limited statistics of a narrow range of observation.

Look, for example, at the multitudinous treatises on Dietetics issued annually from the press, and note how dogmatically the interest of each is made to turn upon its exclusiveness—the originality or characteristic peculiarity of the system advocated in it. A fierce attack is made upon some article or articles of diet, which it is contended must be absolutely prohibited or avoided, notwithstanding the known fact that masses of men, vigorous, hardy and long-lived, are accustomed to subsist mainly or entirely upon such substances. Animal food has thus been denounced again and again by theorists, fanatics, and pseudo-philosophers. Rice, the sustenance of millions, has been accused of many evil tendencies—of originating a disposition to blindness—of generating malignant cholera. Milk itself, nature's choicest, richest, most elaborate and most delicate pabulum, is every now and then assailed as deleterious by some eccentric or misled observer, who hastily ascribes to it certain new or ill-understood disorders, the very obscurity of which renders it easy for him to attract disciples.

A similar spirit of exclusive and narrow inference is shown in relation to the various modes of preparing food. There was a time when children were allowed to eat cherries on the express condition that they should swallow the stones after the soft pulp and luscious juice; so, of late, men have contended that we must take the husk or bran always mixed with the white and delicate farina. One will not loosen the tenacity of the doughy mass with fermentation of any kind, but prefers an unleavened morsel; while another, *horresco referens*, min-

gles medicinally some corrective alkaline with the neutral culinary salt which instinct and habit lead us to employ. One prates of simplicity, rejecting all appliances of art, and all resources of scientific cookery ; and some even condemn the application of fire itself as injurious and unnatural. But the Abyssinian, who cuts his raw and bloody steak from the living animal—the Englishman, boasting of his juicy sirloin and his leaden pudding—the Frenchman, perpetually inventing new combinations, and adroit alike in the battery of war and of the kitchen—all these exult equally in the enjoyment of luxuriant health. So also do the Indian rice-eater and the poe-devouring Sandwich Islander on the one hand, and on the other the Tartar, the Camanche, and the Western trapper—who subsisting of necessity upon animal matters alone, know not the need of bread or any form of vegetable aliment.

Herodotus tells us an instructive story on this subject. The country of the Macrobian, whose name, I need not remind my learned audience, is expressive of their longevity, was reputed to possess vast quantities of gold. Attracted by this report, Cambyses, the Persian monarch, sent certain ambassadors as spies, bearing presents of robes, perfumes, and wine. Of these, they only retained the latter, finding it a very agreeable novelty. One of them inquired how long the Persians lived, and what they eat. He was answered that their greatest age was eighty years, and that they lived upon what they called “bread,” a mass of crushed pulp and the like. On this he remarked that he did not wonder at their living no longer who fed upon *such rubbish*, and that probably they would not live even so long, if it were not for the wine they drank. Being then asked how long the Macrobian lived and what formed their subsistence, he replied one hundred and twenty years and sometimes more, and that their food was boiled flesh and milk.

The physical education of the young has been in all ages and communities matter of most interesting investigation ; how little has been clearly settled concerning it we shall soon see. Necessity and custom—founded often, perhaps generally, upon a previously existing necessity—seem to have dictated all the rules commonly followed. The children of the poor are every where subjected to this tyrannical necessity. They are, as an English writer has it, “not brought up, but dragged up.” Air, light, abundant food, and large proportion of sleep are requisite to the full and healthy development of the young frame ; but they are born in narrow, close, dark chambers, in which, owing to their being overcrowded, they are stinted in the due supply of vital air, and enjoy no seclusion for undisturbed sleep ; and obtain, for the most part, an insufficient amount of their proper food from mothers who, themselves but half-fed, are badly fitted to act as nurses. A striking example of the influences of these contingencies is to be noted at Preston in Lancashire. In that region are born the largest infants known, probably descended from the gigantic Danes, England’s early conquerors. They are said to weigh on the average some pounds more than the younglings of any other portion of our race. But their parents are poor—live hard and work hard—and they in

their turn under these burdens grow up, say the records, into one of the most stunted populations in Great Britain.

The mothers of the poor, I have said, are but indifferent wet-nurses; but in all the lower ranks of life, woman does a large share of the labor which gives the means of subsistence, and hence the necessity of labor interfering with her maternal duties makes her an irregular and inefficient dry-nurse also, and her child must suffer much and inevitably from its helplessness. Now the wonder is, not that so many die under these contingencies, but that so many survive; and this single fact exhibits in strong relief the amazing powers, both of resistance and accommodation, inherent in the animal organism. But they do not merely survive; the poor grow up every where in large numbers, strong and enduring, many of them tall and robust; the men athletic and the women fruitful in spite of the host of unfavorable circumstances indicated above. Yet it is a sad truth that the expectation of life for them is less by many years than of those in better condition; in other words, it is proved, as an English writer phrases it, that the gentleman may reasonably calculate on living from ten to twenty years longer than the laborer. Farther, if we observe closely and on a large scale the influence of these circumstances, we shall first notice, as the most obvious and immediate, an impairment of the form and visage, whose originally glorious beauty proves man to have been created in the "express image of his Maker." Go into our orphan-houses and our alms-houses—visit the thronged hovels which encumber the by-streets and alleys of our great cities, and compare the children of the poor with those of more fortunate parentage. With some exceptions, doubtless, but with how few, alas! we shall look vainly there for those radiant lineaments and smiling eyes which belong to early childhood, and seem to tell us of a brighter sphere and an ethereal origin; justifying the enthusiastic exclamation of the poet:—

"Heaven lies about us in our infancy—
And trailing clouds of glory do we come
From God, who is our Home."

Nay, more. Is it not easy even in the dead body to tell what the previous condition of the subject has been? Besides the hard hand, the coarser figure, and the less perfect symmetry, are there not indelible traces of toil and suffering in the physiognomy and universal aspect of the poor hard-working man and woman? What can we expect, then, but that these will be transmitted as an inheritance—delivered down more or less markedly to their offspring—becoming more and more prominent and accumulating in successive generations as they pass across the field of sorrow, until the whole frame, in every organ and on every surface, shall be, as it were, scarred and deformed with these wounds inflicted by inexorable destiny.

If I dwell on this painful theme, it is not only in the hope that something may be done to mitigate its horrors and to suggest measures having that tendency, but to draw attention to the fact that the evils thus depicted in their darker shades are often present and submitted to, when less intense in their concentration, by those who might remove

or correct them in great part, if not altogether—by thoughtless, uninformed, or neglectful parents, who may, if they will, command access to free air, fresh water, and glowing sunshine. Those who have fallen below this point, as especially happens in cities, come under the management of the communities to which they belong as paupers; their cases are uncontrollable by individual action, but form an item in the topic of Public Hygiene.

It is the extreme helplessness of the human infant which renders it so exquisitely dependent upon its mother, not only as its nurse—a relation upon which stress enough is apt to be laid—but as a protector and attendant chiefly. The prodigious mortality recorded as occurring among children of foundling hospitals in Paris and elsewhere, has been ascribed by general consent almost exclusively to the want of a sufficient supply of their natural food. Doubtless the breast of a healthy mother is the best source from which infant life can be sustained; but a substitute is more easily found for this than for the indispensable care, and handling, and sedulous attendance of the parent. In every city we may daily see the little creatures fat and chubby, growing and thriving upon the milk of the cow or the goat, prepared and offered by the tender hand of the maternal dry-nurse. This best and most nutritious diet—a compound, as Liebig tells us, of every constituent element of which the body is to be built up—should be, at first, its only food, and for a much longer period than is usual. We are often asked when a child should be weaned. Let nature answer the question. When the fountains of supply begin to be exhausted, and the juvenile appetite craves a larger amount than it can obtain from this best source, and the teeth show themselves, and the instinctive inclination to bite and masticate is developed, then, and not till then let the process begin. Let care be taken that all solids offered be reduced to the proper state of minute division until the child is taught to chew them, and never to swallow them without visible and somewhat prolonged trituration.

The evils of too early weaning are obvious enough; but, are there none which follow the opposite extreme? Does not some consistent modification of the gastric juices take place at the time of dentition, preparatory to the change of food now impending, and adapted to such change? This seems at least probable, if it cannot be proved. If any new powers of digestion are developed, will they not be impaired and diminished by want of use? Is not the new variety for which the stomach calls, as life advances, a new mode of stimulation essential to the full and perfect health of the little subject? If these questions be answered, as it seems to me they must, in the affirmative, there must be some risk in the management that shall prevent or impede these changes and new influences. Some tell us that children suckled too long become feeble and rickety; others, that they show a tendency to cerebral affections, hydrocephalus in early childhood, and head-aches in maturer age. For my part I am not satisfied that we have accumulated facts enough to establish any definite doctrines, but there is much to excite a close inquiry. Of one thing I am certain, that whether or not the physical health of over-nursed children is thereby affected, an unfriendly influence is exerted upon their moral and intellectual

faculties ; they are apt to be vacillating and effeminate, selfish, petulant, and passionate.

Next to wholesome food and fresh air, light is most indispensable to the development of the animal body. Without its due admission the complete symmetrical growth of the perfect organism is impossible. Edwards found animals become defective and deformed in a few generations, if brought up in the dark. In the vast recesses of the Mammoth Cave of Kentucky, amidst the profound gloom which broods there unbroken by one ray from Heaven, and in a silence disturbed only by the ripple of the mystic rivers that roll their waters through the abyss, are found the pale, small, eyeless fish—a scaly Albino, of delicate, slender, and graceful figure—and the milk-white crawfish, destitute both of the organ and faculty of vision. But air and light, which act not only upon the lung and the eye, but upon the whole cutaneous surface, cannot impress that surface if encrusted either with its own secretions, or any adventitious coating of whatever nature. A little boy covered with gold-foil, to appear as the symbol of the golden age in a procession before Louis XIV, soon died from closure of the cutaneous pores ; and so have died, repeatedly, animals smeared over with an impervious gummy solution or varnish for experiment's sake. We must, therefore, inculcate cleanliness as a first necessity to the growing child. Better starve or suffocate him outright than keep him half alive, pale and languishing, in foul clothes and foul dark air.

While tracing in the manners and customs of various nations the various modes of rearing their children, and observing their effects upon the developments of the individuals, and the ultimate character, physically considered, of the communities, we shall learn the necessity of extended observation and the danger of drawing hasty conclusions. Every modern writer on Hygiene in our language enjoins it as an established rule, that an infant must be loosely clad, and that he must be indulged in early and free locomotion, in order that his limbs may become stout and well-formed, and his muscles full and vigorous ; and this is echoed on every side, until all the tribes of British origin place their children as soon as possible upon the floor, and with as little clothing as decency will permit. Now, without running into any extreme on the other side, or falling into the dogmatism and exclusiveness which I have denounced, may I not be permitted to suggest in reference to this custom of setting our little manikins to creeping, crawling, and climbing, in the very dawn of their dumpy existence, that the noble, grave, and manly Easterns still swathe their babes, as erst, in the *Stable at Bethlehem* ; that the Italians, who follow the same practice very extensively, are among the most perfect and symmetrical of our race ; and that the red Indian, whose pappoose, for convenience of handling and transportation, is almost constantly rolled up and bandaged to a board or strip of bark, and swung to a tree or on the back of his mother, is still remarkable, as West pronounced him, for his fine straight figure—the young Mohawk thus resembling the Belvidere Apollo ?

The human infant was never intended to march upon all-fours—a mode of locomotion for which the structure of his lower limbs singu-

larly unfits him ; and which, besides, degrades the hand, that most exquisite and characteristic member to which he owes so much of his superiority, far below its proper use. Nor do I think he should be permitted, or encouraged, to stand erect and bear the weight of his body upon his lower limbs, while their cartilaginous structure, unhardened as yet by the deposition of bone-earth, renders them liable to be bent into a curve ; this form, whatever we may say of Hogarth's line of beauty in general, is here neither beautiful nor useful, and is not desirable. Does not Nature rather intend that the little helpless creature shall live entirely by the care of those who surround it, and that its change of place shall be absolutely passive until its joints are perfectly knit, and its bones grow firm ; and that meanwhile its most active exercise shall consist in crowing, and laughing, and loud crying, which circulate its puny currents of blood most vehemently, where to most salutary purpose, in the vessels of the lungs and over the rosy skin.

Passing by the several stages of babyhood, we will now suppose the child ready to go to school, and fit to receive the "sincere milk of the word" of wisdom, human and divine. The generation to which I belong has witnessed many changes in the physical arrangements bearing upon this great concern, with what results let us inquire. "In the present state of civilization," says one of the most eminent physicians now living, the elder Dr. Warren of Boston, a name doubly illustrious, "a child soon after it can walk is sent to school, not so much for the purpose of learning as to relieve its parents of the trouble of superintending its early movements. As he grows older the same plan is incessantly improved on, till a large part of his time is passed in sedentary pursuits and crowded rooms. In the short intervals of confinement at school, the boy is allowed to follow the bent of his inclination, and seek in play that exercise which Nature imperiously demands. The development of his system, though not what it is intended to be, is attained in a certain way ; and he is exempt from some of the evils which fall heavily on the other sex. The girl at an early age is discouraged from activity as unbecoming, and is taught to pass her leisure hours in a state of quietude at home. The effects of this habit are, that about half the young females brought up as they are at present undergo some visible and obvious change of structure ; and of the remainder, a large number are the subjects of great and permanent deviations, while not a few entirely lose their health from the manner in which they are reared." He states these facts still more definitely afterwards in the following phrase : "I feel warranted in the assertion, that of the well-educated females within my sphere of experience, about one-half are affected with some degree of distortion of the spine!" He goes on to quote from a late author, Lachaise, whom he pronounces one of the most judicious of foreign writers, "the assertion that, on the continent of Europe, curvature of the spine is so common" that out of twenty young girls who have attained the age of fifteen years, there are not two who do not present "manifest traces of it." Add to this the opinion of Prof. Linsley of Washington, whose central position and connections give him the most extensive opportunities for observation, that our own dear women of America are the most unhealthy women in the world.

There must be something essentially wrong in a system of which these are the natural and ordinary consequences, and we must abandon it at once, or modify it greatly. I will not conceal from you my belief that in the views given above some exaggeration, involuntary and unintended, is to be allowed for, but the weighty authorities whom I have named command our respect, and inspire us with grief and apprehension. If half of what they tell us be true, it is enough to demand instant inquiry and the most serious attention.

We are bound to fix correctly, though in a general or average way, the proper period of going to school, and the proper distinction of time at school. As infant schools first originated in the form of the English Dame-school, they were not only purely beneficial, but filled up a vast desideratum in the early life of the poor. The laboring woman, forced to leave her young ones in order to procure subsistence for them, was but too happy to entrust them in the mean while to some infirm or superannuated matron of her own class. Such an one might thus bear the daily burden of many families, and earn her own support by a very trifling fee from each mother whose place she so supplied. Although not thought of probably at first, and always regarded as very secondary, it is not difficult to imagine in the little circle thus collected the imperative necessity of order and discipline, and the ready aid of the alphabet in enforcing both, besides its influence in pleasing the parents. Unfortunately, however, some busy philanthropists noticed the opportunity—too tempting to be lost—of cultivating this young shrubbery of fresh, wild intellect. For a short time all went well, and merrily enough too, when the celebrated Wilderspin introduced simple singing; the whole of the exercises being little more than regulated play—systematic gymnastics, instead of rambling and mischief in the street, or on the common. The old dame of whom we spoke was in no danger of exerting too stringent restraint on the one hand, or on the other of stimulating unduly the immature intellect; but both these evils soon were engrafted on the system by the hands of ordinary schoolmasters and mistresses, and so much injury accrued, compensated by so little comparative benefit, that the whole machinery has sunk into deserved disrepute.

Yet we must not run into the opposite extreme. Cobbett tells us that no one of his children received a single compulsory lesson before the age of sixteen, and it is well known that his family are above the average of attainment and intelligence. This is an exception however, and one easily accounted for. "The best education," Mrs. Hamilton truly says, "is that of example." The son of the carpenter clutches with his little hand the hammer and saw of his father; the gardener's child cultivates a plot of ground. Thus Cobbett's children seeing him perpetually engaged with his book and his pen, their curiosity to find out the purpose of such work, and the instinctive disposition to imitate what they saw, rendered it expedient rather to restrain them than to urge them. If children be not offered some such example—as in the great mass of instances where the father carries on his pursuits abroad, and the mother is absorbed in domestic occupation—their minds will run to waste, and hence it is that the habits and the emulation of the school-room become necessary excitants. But they must not be applied

prematurely, or in undue force, or too protractedly. Even in the most beneficent enterprises we may go too fast and too far. "Children under fourteen," says Dr. Warren, "should not be kept in school more than six or seven hours a day, and this period should be shortened for females. It should be broken into many parts, so as to avoid a long confinement at one time." The evil is not all done in the school-room we ought to remember; the lessons there laid out to be got at home consume much additional time. Thus I have often known five hours successively spent in school by little girls of six to ten, and two or three more laboriously employed in preparing the next day's exercises. I would regulate the hour of study in a general ratio to the age of the child; between three and five years of age, three hours a day of school discipline are as much as can be allowed; from five to ten, we may impose five hours daily of study and confinement, but no more; from ten to fourteen, six or seven hours may be spent in preparing and reciting lessons, and in undergoing all instruction and practice in whatever departments. Sir Thomas More, in his exquisitely imagined Utopia, does not allow more than seven hours of regular labor to be allotted to any one.

I fully agree with the venerable author above quoted in questioning the propriety of "the application of the system of rivalry," as he phrases it, "to the softer sex;" of arousing in them the spirit of emulation—the ambition to excel. He speaks charmingly of the success of principles and motives of higher character and better adapted to these more pliant subjects—the force of reason, the sense of duty, the desire to be loved, and the patient and kindly influence of the good teacher.

If I admitted of the distribution of premiums at all among girls, it should be for gentleness, docility, goodness; but for no form of cleverness. Among boys there is no substitute for the great motive of the manly breast—ambition; but it must not be too strongly stimulated. Applying it cautiously, I would always aid it with the most familiar impelling power of the older world, a favorite clearly of the wise Solomon—the time-honored rod, which it is too much the fashion of the present day, and in the western hemisphere especially, to neglect.

We must carefully repress the premature development of the intellect or the passions. Precocity of every kind is a dangerous condition. The complicated organism is constructed for the performance of so much work and no more; the greatest amount is to be attained by a prudent adjustment of the demands made upon the several parts of the machine. I do not by any means object to systematic gymnastics and callisthenics, but I protest earnestly against the substitution of them for the wilder, nay, the wildest and most riotous games of noisy childhood. So far from being incompatible, indeed, they may and should be made to concur in the full development of the physical powers. In the merry dance of graceful girlhood, where the elastic buoyancy of the young limb is restrained by the regulating rhythm of inspiring music, utility, beauty and pleasure are delightfully blended. Scarcely less utility, though with the minimum of grace and enjoyment, belongs to the stiff, but precise, active and forcible movements taught in our military academies—fountains of our country's glory and pride.

But the details of this branch of my subject are interminable, and I must proceed to offer one or two suggestions under the second head proposed, viz: the regulation of the personal conduct—the general course of life of the individual. In the formation of such a code of laws we must consult the constitution of our nature, which can never be violated with impunity. This doctrine, founded in most unquestionable truth, has been pressed to an absurd extreme by some of our modern philosophers, who lay down uncompromisingly the dogma that “disease is unfailing evidence of wrong-doing,” as some mildly express it; “synonymous with guilt,” say others, tersely—or, as I once heard a reverend English Radical of noble birth declare with harsh emphasis, “all ill health is sin!” It is not a correct sentiment in any point of view. As to the individual, he may be the passive recipient of morbid impressions, accruing from irresistible predisposition, obscure contingencies of local residence, geographical position, occupation, &c., unforeseen and perhaps accumulating silently and secretly. His ancestor may have been, and thus he may become, the victim of inevitable contingencies which effect the formation and transmission of hereditary maladies, as cancer, scrofula, insanity. We suffer often in masses from providential inflictions, for the causes or consequences of which we are no more answerable than for the sweep of the tornado, or the convulsions of the earthquake; such as the invasion of epidemics, the inundation of malaria, and the contagious propagation of many forms of wide-wasting pestilence.

But while we thus denounce the unwarrantable assumptions of which I have spoken, we must not lose sight of the instructive truth which lies beneath the mass of error exposed. Striking instances will at once present themselves to your minds in the long list of ineffable sufferings from gross gluttony and revolting intemperance. An almost infinite series, less obvious but equally dependent upon diverse forms of mere self-indulgence, and habits of scarcely noted excess, might be brought forward and clearly made out upon examination.

Addressing the adolescent as in a great measure the controller of his own future destiny, we should earnestly inculcate upon him the value of moderation in all things, nay, of a reasonable self-denial. Let each one for himself consider the influence of the several modes of living; let him regard the results, let him closely investigate the tendencies, and shape his course accordingly. Teach him that physical wrong-doing, whether voluntary or involuntary, reckless or accidental, will and must be followed by a physical penalty; this may be sooner or later in coming, but it will and must come. Effect will follow cause. The avoidance of excess in every shape is essential both to happiness and virtue; all forms of riot are fatal to both. We cannot always trace the links of the chain which unite consequences with the causative agencies. Some of the modes of incorrect conduct produce immediate and cognizable results, others are more remote than the long planted seed of the early winter from the ripe grain of the succeeding summer; others still, it is not in our power to follow at all in the individual, their consequences being deducible only in masses by calculation of general health or of proportional longevity. But the

nature of any agent or habit being once made out and its tendency ascertained, we are plainly directed in our course in reference to it. Mithridates as we are told had rendered himself, by frequent use, insusceptible to the action of all poisons known in his day. Yet none of us would envy the King of Pontus his acquired insensibility to the most potent drugs. It is not long since an East Indian was shown who could swallow a dram of corrosive sublimate without injury; and some of the Theriakis of Turkey and of China take, not only unhurt, but with delightful exhilaration, many grains of solid opium or an ounce of laudanum, or inhale clouds of the dreamy vapor of the dried poppy-juice burnt in the pipe. Does not this tolerance of active medicaments imply—do we not habitually draw the inference in our Pathology and Therapeutics—a state of serious disease?

Our reason is satisfied when we have ascertained, not the mere preponderance of evil over good, for that is apt to be a difficult and doubtful question, but the specific quality and the substantial tendency of an agent to evil; and this must always be decided on, as fair ground for absolute condemnation. Temperance is a different thing altogether, and relates to the proportional employment of substances not in their own nature deleterious, but injurious only in excess. The limits which it comprehends can be expressed in terms neither by the law of the land nor the moral law, but must be determined by every one for himself.

Nor should we lose sight of the ultimate and hereditary influences of a continuance of bad or doubtful habits in successive generations. "The fathers have eaten sour grapes, and the children's teeth are set on edge."

The seeming harshness of the natural law above announced, is tempered somewhat by its certainty and uniformity, and the absence of all necessity, in the great majority of instances, that we should subject to any of its penalties our coming posterity. It is in this way that temperaments are built up, and predispositions to disease originate—topics of great importance in the discussions of Hygiene. When men arrive at the perfection of reason, but not till then, they will govern themselves fully by the considerations thus suggested. In the mean while, it is the duty of our profession to urge them on all fit occasions, and thus to modify, if we cannot control, the conduct of those whom we advise; to approximate, as nearly as may be, the good we cannot absolutely attain.

It would be, however, very absurd to lay down precise rules of living as to diet, exercise, occupation, sleep, and so on, for the government of all men. As well fit all men with the same suit of clothes. Our capacities differ infinitely, both for action and for enjoyment, and it surely cannot be doubted that the Creator intended all our faculties to be filled to the utmost. But how shall we know what they are, under an uniform system of universal ascetic repression?

Lay down the well-defined rule, that excess impairs and diminishes them, and instruct men in the tokens by which they shall know when they commit excess—if indeed a primary instinct, a *sort of physical conscience* be not, as I fully believe, amply sufficient—and you have done

all that can be done to guard the young and inexperienced. He who will not obey the admonitions of Nature—the never-failing warnings always given promptly and kindly in the first instance, but soon withheld or suppressed if not attended to—will surely refuse submission to any conventional regulations until it is too late to avail himself of them.

Thus it is that we find the advocates of exclusive modes of living in every form, belonging with few exceptions to the catalogue of confirmed invalids; the exceptions usually occurring among persons known as whimsical and eccentric, some of whom perhaps (and to this remark I would solicit your attention) may be following certain obscure, instinctive intimations from Nature herself, who, if I may employ such language, seems occasionally aware of departures from normal life and ordinary susceptibility, and suggestions of departures from ordinary modes of living thereby rendered necessary. Whether we should indulge these caprices or endeavor to control or restrain them, I shall not now stop to inquire; the discussion properly belonging to Pathology rather than Hygiene, from the very supposition of a morbid state of the individuals referred to. Let me be clearly understood as recommending, in the rules I have offered, no effeminate shrinking from a fair and rational contest with external circumstances. I admire with all other readers the heroic constancy with which Parry and Ross, Franklin and Richardson, bore the intense cold of the Arctic regions, which they invaded for the attainment of high objects; I admire the patient endurance, the martyr spirit of Park and Landor, Denham and McWilliam, in their exploration of the pestilential wilds of burning Africa. Without this spirit of conquest, the higher tribes of our race would have been confined within the narrow limits of European civilization. Our western star of empire, which now shines over more than half the globe, and will soon illumine the shores of every sea, would have glimmered as a faint and distant spark, or set in early darkness.

But I would abandon, after due exertion, every unreasonable and hopeless enterprise. I would leave to the savage tribes, fitted by the very inferiority of their attributes to roam over the wilds of the great American deserts of Oregon, of New Mexico, and of California, these desolate domains; I would cease to contest with the Bedouin for his torrid sands, and to the African I would abandon the unmolested enjoyment of his thick mangrove jungle, and steaming morass. The sacrifice of life and health in the Eastern Colonies of the British, in their attempts to fix themselves upon the Coast of Guinea, and the Islands of the Western Archipelago, and in their commercial explorations of the Niger and Tsadda, offer abundant warning of the absolute impossibility of success in similar projects, and show the insurmountable opposition of climatic influences. Yet the energy of our Anglo-Norman character is so irrepressible that I should feel no surprise at learning that an expedition was on foot to make a settlement upon the icy promontories of Boothia Felix, or invade the Abyssinian mountains. It is our "manifest destiny" to roll our restless waves of burning life against every barrier, and to dash ourselves into foam against every obstacle over which we cannot sweep in triumph and success.

Providence has allotted to the several varieties of human kind their respective places of abode. In extreme instances these allotments are final and unchangeable; the Caucasian tribes can never fix themselves upon the Gold Coast, or inhabit the fertile plains of Hindostan; nor can the tawny or dark races flourish except under the hot sun of the South: and in the attempt to encroach on all debateable territory, we encounter a host of difficulties in the deadly pangs of sickness and the tortures of fatal disease, which, could they be foreseen or properly appreciated, the boldest heart would quail in dismay. With the sad history of these it is the lot of our profession to become familiar.

The acclimation purchased by the suffering of so large a proportion among those who survive, and the sacrifice of so many who die, is but imperfectly transmitted, too, to the offspring of the invaders, whose childhood is a long period of susceptibility to similar suffering and risk. For all these you must prepare yourself to indicate proper and available means of protection, as far as protection is possible, and, at any rate, for alleviation of the burdens which oppress them. These it is foreign from my purpose now to treat of; they are to occupy our attention hereafter in due time and place.

In this early stage of our country's existence we are already charged with certain national weaknesses of physical character and constitution, of which the most prominent and grave is a disproportionate liability to insanity. Statistical tables of authority before me give the following figures as approaching accuracy:

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| In Italy, the insane are to the whole population as 1 in 2500 | | | |
| France, | " | " | 1 in 1500 |
| England, | " | " | 1 in 1200 |
| United States, the last census gave | | | 1 in 979 |

It is not pretended that these statements are absolutely precise; all that concerns us is the question of their comparative accuracy. Copland agrees with those who ascribe the larger ratio in the two countries last named to the greater intemperance prevailing, and so it may be in part, but this will not account for the facts. If we analyze the U. S. census, we find insanity far more prevalent in the most virtuous and best educated portions of our nation. It prevails in a direct ratio with the degrees of intelligence and activity which characterize the different sectional populations. In the six New England States the ratio is of 1 insane person in 680; in six Southern States of 1 in about 1200. I will not weary you with the details on which I found my opinion, but I am satisfied that the melancholy predominance is owing to the unremitting labor, both of mind and body, but especially of the former, to which we condemn ourselves, or to which we are condemned by relentless custom. Our ancestors, far wiser in their generation in this respect at least, appointed numerous fasts and festivals, holidays, in which religion enjoined and habit sanctioned intervals of abstinence from all usual or ordinary task-work. Health, both moral and physical, was thus kept at a higher standard. It cannot be questioned that (other things being equal) the duration of life would be prolonged by the interposition of such restorative periods of relaxation, amusement, recreation, repose. But the Englishman and Anglo-American reso-

lutely deny themselves this delightful luxury of rest, nay, I should rather call it, this positive necessary of life; and consume utterly and rapidly their powers, by unrelenting constancy of action. The animal mechanism imperatively demands, like all other machinery, its occasional periods of inaction and readjustment. In this relation it is delightful to reflect upon the beneficent institution of the Sabbath, that divinely authoritative and almost single interruption of the wearisome routine of habitual toil, as, even in its present imperfectly observed, nay, often sadly desecrated condition, one of the most important among the means of promoting the enjoyment of health and the prolongation of life.

On "this sweet day of sacred rest" throughout all Christendom a solemn silence reigns supreme. The anvil rings not to the stroke of the hammer; the deafening roar of business is hushed even in this modern Babylon. The wheels of commerce stand still, or roll with abated velocity, and the horrid din of the manufactory is suspended. The slave is awhile unfettered, the imprisoned artisan comes forth to the fresh air and the bright sunshine—"the woodman's axe lies free, and the reaper's task is done." On this day the standard of humanity is advanced, and for one seventh of his existence the rudest boor is comparatively refined, the lowest link in the chain of social being somewhat elevated. The "human face divine" even of the chimney-sweep, unconscious of water except on this periodical jubilee, is more or less succesfully scoured; the hebdomadal beard of the rustic is shaved, and "his smooth chin shows like a stubble-field at harvest home." Sunday clothes, at any rate better than the working dress, are put on, with what an obvious feeling of self-complacent satisfaction! the Sunday dinner, better if possible than the week-day meal of the poorest, is prepared more carefully and eaten more deliberately, in luxurious leisure and with special zest; the Sunday evening spent in social conversation, or music, or religious exercises; and a tranquil sleep follows, unalloyed by the uneasy sense of fatigue, and duly preparatory for the toils of the coming morning.

Blessed, indeed, and holy is the Sabbath of rest; and well does it befit the physician, from whom is almost entirely withheld the kindly and restorative influence of this septenary renovation, and who strongly appreciates its value by its loss, well does it befit him to inculcate on others its inestimable privileges and contend for its universal observance. But for the wisely ordained restraint of the Sabbath, the unrestrained spirit of mammon, I doubt not, would rule with despotic sway, and the lust of gain, glowing with the fervor of a perpetually accelerated excitement, would soon reduce to dust and ashes all that is bright and gentle in the fair fabric of our modern civilization.

One word more on this topic of Personal Hygiene. Americans are accused of a national neglect of the bath. We are said to content ourselves—and I speak not now of the poor, of the laboring people, but of the middle and upper orders, the great masses who claim to have attained a high standard of social refinement—we are said, and I fear with some truth, to content ourselves rather with frequent changes of clothing, than with the free use of water in ablution, for which there can be no substitute. How far we may be behind our Christian breth-

ren of Europe, I will not pretend to pronounce; the "great unwashed" are affirmed to constitute a numerous body among Teutons, Celts and Anglo-Saxons abroad, as well as here; but it is certain that we all compare unfavorably with the older races of the East. "The practice of religion," said Mahomet, "is founded on cleanliness, which is one half of the faith, and the key of prayer." Enjoining his followers to be constant in prayer "before the rising of the sun and before the setting thereof; in the hours of the night, and in the extremities of the day; when the evening overtaketh you, and when you rise in the morning; at sunset and when you rest at noon;" he strictly directs them to concurrent frequency of ablution. "O true believers! when you prepare yourselves to pray, wash your faces and your hands, and your heads and your feet." "Neither are the Mahometans," says the translator of the Koran, (Sale,) content with "bare washing, but add also as necessary points, combing the hair, cutting the beard," (a duty of late much neglected among us,) "paring the nails, &c."

In the ordinances of Hindu law, the Institutes of Menu, given us in English by Sir William Jones, there is a great attention paid to this matter of personal purification. Upon the almost interminable list of specifications, which cannot be repeated here, we find the Brahmin "who desires purity" commanded to wash himself whenever he is going to read the Veda, or sacred volume, and "invariably before he takes his food."

I attribute to this defect of personal nicety, of which I am now speaking, many or most of the peculiarities of habits and manners that have laid us open to foreign criticism—a criticism under whose taunts we vince with special and morbid sensitiveness.

In the advancing settlements of our new country, much may be pardoned to the condition and circumstances of the pioneer. But surely, under any contingencies, a Christian should wash his hands as often as a Mussulman, or a Hindoo. Cool springs and running streams abound almost every where in our inhabited territory, whether of forest or prairie land, and our chief cities are supplied with fountains in royal munificence.

From neglect of these matters flows naturally a culpable indifference to the neatness of the clothing, the house, the table, and all other domestic arrangements. All these points of habit are consistent, and we can thus account for the nuisance of the stained and slippery floors of the masticators of tobacco, which offend so many of our senses.

I have left myself very little time to devote to the third and last branch of my subject, the topic, namely, of Municipal or Public Hygiene—the most neglected, yet, as it seems to me, the most truly important of all the departments of political economy. Men have devoted time enough ineffectually in continuous efforts to *relieve* suffering and *punish* crime. I do not deny that these are proper objects of attention; but surely if we can by any method *prevent* crime and suffering, this should be our paramount purpose; and I fully believe that the physical destitution of the poor is the chief cause of intemperance, vice and disease among them. I fully believe that if one half the amount expended in hospitals and alms-houses, prisons and peniten-

tiaries, were appropriated with judgment to the care of the physical well-being of the wretched class with which these institutions are filled, the remaining moiety would be far more than sufficient for the necessities that now, with the most unsatisfactory results, consume the whole. Extreme poverty, one of the saddest and bitterest of curses inflicted by an angry Heaven—extreme poverty, the double cause and consequence of disease, is the most prolific parent of crime. Of this the inquiring moralist may be satisfied by copious testimony. Governments, then, can exercise no function of more profound responsibility than that which looks to the hygienic condition of the community. In the great plagues of Florence and of London, nay, in the modern Cholera, the multitudes grew reckless, violent; robbery and murder stalked fiercely through the desolate streets. "Let us eat and drink, for to-morrow we die," became the maxim as well with the refined sensualist of the Decamerone, as with the grim ruffians of St. Giles and the Parisian fauxbourgs. Such demoralization follows always upon the heels of pestilence and famine.

It would be Utopian to imagine that any effort can altogether preclude, among men constituted as they are, the infliction of this curse of poverty upon the improvident and imbecile. But it is possible to diminish the number of its victims, and to evade the diffusion of its malignant influence beyond the circle of its inevitable presence. Policy, as loudly as humanity, demands that this should be earnestly attempted. The rich man in his luxurious cabin, may be infected by the ship fever of the miserable emigrant in his crowded steerage. Pent up within the thronged area of the great city, he will likewise suffer from typhus generated in the lanes and alleys, hovels and cellars among which he must reside, or whose pestilential breath he must inhale in passing. The citizen who will not provide for the enforced purification of the streets and houses about him, may soon become the victim of the miasms eliminated there, although his own proud palace may seem, by its admirable architecture and its comfortable appointments, elevated far above the sources of such miasms. We are linked inseparably together, the rich and the poor, the lofty and the low. Our voyage across the great ocean of existence must be made in one common bark, wafted by the same favorable breezes, tossed by the same rough billows, and wrecked in the same rude tempests. "Nothing human can be foreign from us," whether we regard the affairs of our race with the genial sentiment of the Roman dramatist, or look upon them with the cold and calculating eye of the selfish voluptuary.

The hygienic office of government is twofold: it must regulate the external relations of the community with one strong arm, while with the other it directs minutely the internal police. I will not now enter upon the debateable questions of contagion and infection, which are hereafter to be discussed in full; it will suffice here to point out a course of precaution which will scarcely offend any reasonable philanthropist.

1. There are certain diseases which all allow to be communicable, importable, transmissible, contagious, or infectious. It is clearly not only the right, but the duty, of every community to repel the entrance

of these in all known or suspected modes of introduction. The ability to effect this most desirable purpose *may*, nay, it *must*, be imperfect; yet it should be exerted to the utmost.

2. There are other diseases of which it is doubtful whether they possess this property of transmissibility—whether they can be subjects of communication from one person or place to another. Observation or experiment will show in reference to these, that one of two things is true or probable. Their foci of prevalence being known, intercourse therewith will present the coincidence of their appearance in other places, or it will not. The fact of such coincidence being once noted, the duty of the authorities is palpable; while the question is unsettled, they should lean to the side of general safety. Let it be left to physicians, whose proneness to differ among themselves is proverbial, and perhaps praiseworthy—let it be left to them to split hairs in the tempest of wordy clamor, drawing vague lines between infection and true contagion, between atmospheres inquinated by foreign intermixtures and poisoned by exhaled viruses, between the personal importation of sick bodies and the concentrated influence of rank fomites; but let the whole profession unite, *pendente lite*, in advising measures of the surest precaution. Let them all hold in warning remembrance the changes of opinion which on this subject the most distinguished controversialists have acknowledged.

3. The quarantine established should be organized in precise relevancy to the nature of the case to which it is applied. General and indirect measures of prevention are both unsatisfactory and oppressive. The restrictions imposed on commerce in this way are hard to bear, and will scarcely be submitted to at all unless so arranged as to commend themselves openly to reason and justice. In reference to *persons*, let us carefully ascertain the “latent period” of every form of contagious pestilence, and let the traveller be detained only so long as will surely pass beyond this period. The present duration, which gives name to the law, is unnecessarily tedious and injurious. If an attack of Plague or Cholera develop itself always *within eight* days after exposure to its source, it will be sufficient to sequester a passenger from a foul port twelve, fourteen, or at most sixteen days, when, if unattacked, he may be admitted; yet after personal purification rigidly enforced, for a man may carry about him, as at the celebrated Black Assizes at Oxford and elsewhere, a contagious influence that may not affect himself. As to *other* fomites, ascertain and apply all efficient means of disinfecting them, and let the foul vessel be well and thoroughly cleansed.

4. Such quarantine should be established upon the most liberal principles. The unfortunate subjects of restraint—sacrifices for the time to the public safety—should be treated with all compatible kindness; if sick, most amply supplied with every solace, and all possible means of restoration; if in health, offered every hospitable entertainment that civilization and refinement can bestow. Let no niggardly economy prevail. While the poorest should be placed in comfort and ease, those to whom custom has made luxuries necessary should be permitted to procure all that they may demand.

If these measures should be objected to as unduly expensive and burdensome upon any community, let the objector take the trouble to calculate and compare the pecuniary injury, the evil, as expressed arithmetically in pounds, shillings and pence, of the epidemic presence of any one pestilence in a commercial city, leaving out of consideration the anguish of sickness and loss of life; let him contemplate the distraction, the dispersion of the population, the suspension of business, its slow and fearful revival, the depreciation of property. Look at New Orleans, among all the cities of the world the most favorably situated for commerce, with the exception only of New York, if even New York be excepted, and ask why her population has not increased for the last ten years, nay, has perhaps diminished rather, while the wealth of the West, and of this vast continent, has been poured profusely into her lap through the Father of Rivers, in vain. What expenditure, efficient for the removal of her insalubrity, or her imputed insalubrity, would not have been wisely devoted to that purpose? Who can doubt the immediate and prodigious increase of her wealth and population, this burden being once taken from her?

The same remarks will apply equally to the last remaining point upon which I am to touch. Among the internal sources of disease in every community to which hygienic regulations must be directed, I specify first and chiefly, an undue density of population. I lay down the rule, as established beyond all doubt or denial, that the most crowded cities are in direct ratio the most sickly and vicious, and that the most crowded parts of a city are most unfriendly to life, to health, and to morals. Thus, take examples:—Liverpool gives the rate of 460,000 human beings collected upon a square mile, one of its sections of 105 square yards holding a population of 12,000. The average age at death is but seventeen years; a death occurs annually in every $28\frac{3}{4}$; its entire population spreading at the rate of 138,224 to a square mile. In London the greatest density is at the rate of 243,000 to a square mile, while its average spread is less than half as crowded as that of Liverpool. Such is the difference of healthfulness, that in London the average age at death is set down at $26\frac{1}{2}$ years; there is one death yearly in every $37\frac{1}{3}$; while more than twice as many as in Liverpool reach seventy years. One of the sections of our sister city, Boston, is said to offer the nearest approach to the prodigious density of Liverpool, containing between 3000 and 4000 inhabitants, who are crowded together at the rate of 441,500 to the square mile. The average age of those buried from that section, as well as could be ascertained, was $13\frac{1}{2}$ years. The average age of deaths in Boston, generally, is stated at $22\frac{2}{3}$ years, having deteriorated to this low point from $27\frac{1}{4}$ within ten years, during which period the population of the city had doubled.

In this great and rapidly growing metropolis, as in Liverpool and in Boston, the poor are pressed together, in certain sections, to a degree altogether incompatible with health and life. The *cellar population* of the first named town has been set down at 40,000; it is probably 25,000 here. In the very nature of the case, these unfortunate troglodytes are deprived of their due supplies of light and air, and the results

collated for us in the instructive pages of Griscom are such as may be anticipated. But it is not consistent with time or the occasion to go into any farther details.

We owe to the wisdom and energy of one of our representatives in Congress, the Hon. Mr. Grinnell, the passage of a recent act, prohibiting the crowding of emigrant ships from Europe, carried frequently to an extent which offered no faint image of the horrors of the middle passage in the slave-trade. To whom shall we be indebted for the enactment of a law which shall prohibit the residence of more than a given number of persons within an allotted space on shore? Facts show that such an ordinance would be no less proper, wise, or humane. Such density of population implies all the evils of which I have spoken: want of fresh air, of which each pair of lungs requires a large and constant supply—of water—of light; to these negative adding the positive inflictions of perpetual intrusion and disturbance, and the accumulation of all shapes of disgusting filth, and all varieties of insalubrious effluvia. Decency, morality, nature herself shrink with loathing and dismay at the long train of physical and moral evil which follows upon the necessities, the atrocious but inevitable vilenesses, of this concentration of frail, wretched, suffering, hopeless, festering mortality. After reading over the sickening records in the Sanitary Reports before me, I solemnly avow the sentiment, that to all concerned, the total and prompt extermination, by sword or famine, of the miserable denizens of the localities above indicated, would be a happy alternative. The unutterable pollution, the squalor, the anguish there endured must make angels weep, and touch with pity the arch-fiend himself, whose dread abode contains no pang more intolerable, except its eternity of despair.

Some, not indifferent I trust, but impelled by their strong persuasion of the impossibility of finding a remedy, would turn from the contemplation of this terrible state of things. But the danger and the burden are not lessened by our apathy on the one hand, and on the other it is no longer doubtful that much can be done to alleviate them. Let the density of population of every ward in every city be regulated by law, allowing the maximum consistent with life and health. Let all arrangement of houses, so as to form confined courts, or alleys, or lanes, be prohibited, and no one permitted to be so built as to prevent in any other a free outlet of air in one direction at least; let *all domiciliation in cellars be absolutely forbidden*; these caves are unfit for the residence even of domestic animals, and fatal to man. Let a general supervision of domestic architecture be exercised, so as to insure in every house ventilation and admission of light; let places of shelter—night-houses—be erected at the public cost, where lodging, under the supervision of the police, may be had by the homeless, both at a minimum rate of payment, and for pauper vagrants without such demand; where temporary seclusion at least, and comparative cleanliness and comfort, shall be placed within the reach of every miserable son and daughter and victim of civilization. If it be objected that these measures are difficult and involve expense, I reply that nothing ought to be regarded as difficult, every thing should be possible and promptly

done, no expense should be spared that may avail to save us from the abyss of vice and wretchedness, on the profound depths of which the researches of our English brethren have thrown such appalling light.

Think of the condition of the poor laborers of the British cities, of whom so large a proportion have but one room to inhabit in common; male and female, children and adults, in indefinite numbers and in all the circumstances of life, by day and by night, sleeping and waking, in sickness, and sorrow, and infirmity! Think of the far worse than savage incrustation of all imaginable and unimaginable impurity, moral and physical, thence inevitably arising! the deep debasement, the total loss of all natural feeling that must ensue! We have the strong testimony of Southwood Smith, that not only vice, but crime, is here generated in rank profusion. "In these districts," he tells us, "not only pickpockets and thieves, the degraded and the profligate, but in general, great criminals, violent and reckless men, are born and matured."

But I must conclude. These matters are to come before us more than once while engaged in considering, pathologically, the causes of disease, and therapeutically, the avoidance, removal, and counteraction of those causes. We must, then, contemplate more closely the revolting pictures at which I have now merely glanced.

Meanwhile, I trust I have succeeded in awakening your attention to a topic perhaps new to many of you. In an age boastful of its philanthropy, loud in its promises of aid to the oppressed, convulsive in its efforts to raise the lowly, to reform the intemperate, to comfort the prisoner, to enlighten the ignorant, surely the claims presented in behalf of diseased, frail, sinking, and suffering humanity will not be neglected. At any rate, I am proudly confident they will be regarded duly, as they ever have been, by our much calumniated but truly benevolent profession.

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